

A PILOT STUDY INVESTIGATING THE EFFECT OF HAEMODIALYSIS ON LEG
EXTENSOR POWER AND POSTURAL SWAY IN OLDER HAEMODIALYSIS PATIENTS

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Introduction: As both the surviving and newly accepted haemodialysis population become more elderly[1], we are increasingly seeing the effects of haemodialysis against a background of the normal problems of aging. Patients on haemodialysis programmes are at increased risk of hip fracture[2] and their subsequent morbidity and mortality is more severe[3]. These fractures are occurring in patients with heterogeneous and advanced renal bone disease and multiple co-morbidities, but the reason for the acute event is not clear. It has been shown that the demographic and other characteristics that predict risk of hip fracture in the general population also do so in end-stage renal failure[4]. Falls prevalence correlates with fracture prevalence in the general elderly population. The prevalence of falls and their aetiology is not known in the haemodialysis population but is currently under investigation. This present study sought to investigate the effect of dialysis on parameters believed to be associated with falls risk, namely power of the extensor musculature of the leg, postural sway and the timed get up and go test.

Method: Twenty-two consecutive patients (July – Dec 2002) attending for dialysis were approached to take part in the study, 16 agreed and complete data are available on 14 subjects. Prior to dialysis subjects were assessed twice for each of the following: postural sway using the Balance Performance Monitor (SMS Technologies Ltd), with their eyes open and then with their eyes shut; Leg Extensor Power using a specially designed rig and their Timed Get Up and Go Test. The same assessments were then repeated once dialysis had been completed. Pre and post dialysis blood pressure and intradialytic weight loss were also recorded.

Results: 14 subjects (11 men, 3 women) aged 62-85 years (mean 71.7 ± 6.91) completed the study. The results are shown in the Table below.

	Prior to Dialysis	After Dialysis
	Median (IQR)	Median (IQR)
Postural sway (Eyes Open)(sway number)	2.88 (1.48,6.41)	3.13 (1.98, 6.33)
Sway Path (Eyes open) (mm)	383 (297.25, 446.50)	398.50 (299.25, 604.13)
Postural sway (Eyes Shut)(sway number)	2.60 (1.14, 6.01)	3.20 (1.98, 5.33)
Sway Path (Eyes shut) (mm)	466.50 (337.00, 1214.25)	501.50 (387.75, 806.25)
Leg Extensor Power (W)	81.3 (43.03, 91.63)	73.80 (46.65,97.48)
Timed Get up and go Test (s)	9.34 (7.94, 10.72)	9.11 (8.15,11.29)

There was no significant difference in any of the parameters assessed, with the exception of an expected increase in sway path with the eyes shut in both pre and post-dialysis tests..

Conclusion: The absence of statistical or clinical difference in the pre and post-dialysis results was a surprise. However this pilot has highlighted a number of issues unrelated to the results. The patients were not allowed adequate habituation due to time constraints prior to dialysis and the timing of the assessments (often very early in the morning or late at night). In addition the assessments may not have been the most appropriate. Perhaps more functionally relevant assessments (e.g. Functional reach Test) may be more revealing in any future investigations.

References:

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